SIGAda 2009 Advance Program

**ACM Annual International Conference
on Ada and Related Technologies:
Engineering Safe, Secure, and Reliable Software**

**Hilton St. Petersburg Bayfront Hotel
St. Petersburg (Tampa Bay area), Florida, USA
November 1-5, 2009**

Sponsored by the ACM Special Interest Group on the Ada Programming Language (SIGAda)
in cooperation with Ada-Europe, Ada Resource Association, and ACM Special Interest Groups on
Embedded Systems, Programming Languages, Computers and Society, and Computer Science Education

Special Keynote Presentations

**An Ada Retrospective:
Developing Large, Mature, Reliable Systems**

Richard Schmidt
Lockheed Martin
Information Systems & Global Services - Civil Group

**Echo: A New Approach to Formal Verification Based on Ada
The Technology, and Experience in Security and Medical Devices**

John Knight
University of Virginia
Computer Science Department

**A Look at Ada from Both Sides Now:
Government and Defense Contractor Perspectives**

J.C. Smart
Raytheon
Intelligence and Information Systems

Corporate Sponsors – Platinum

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ACM SIGAda Annual International Conference
Summary Conference Schedule

TUTORIALS Sunday, November 1

Introduction to Ada (Full Day)
Michael Feldman (The George Washington University (Emeritus))
Introduction to C# and .NET (Full Day)
Benjamin Brosgol (AdaCore)
How Ada Object Orientation Works (Morning)
Jeanne Murtagh (Lockheed Martin) and
Drew Hamilton (Auburn Univ.)
System and Software Architecture Using AADL (Afternoon)
David Gluch (SEI and Embry-Riddle Aeronautical University)

TUTORIALS Monday, November 2

High-Integrity Software Engineering w/ SPARK Pro (Full Day)
Rod Chapman (Praxis)
Unmanned Systems and Ada (Morning)
Richard Weatherly et al (The MITRE Corporation)
Ada for Parallel and Real-Time Processing (Morning)
John McCormick (University of Northern Iowa)
Service-Oriented Architecture (SOA) Using Ada (Afternoon)
Ricky E. Sward (The MITRE Corporation)
Embedded, Hard Real-Time Systems with Ada (Afternoon)
Pat Rogers (AdaCore)
Multi-Language Programming with Ada (Afternoon)
Quentin Ochem (AdaCore)

TECHNICAL PROGRAM Tuesday, November 3

9 – 10:30 am
Greetings from SIGAda and Conference Officers
Keynote Address: **An Ada Retrospective:**
Developing Large, Mature, Reliable Systems
Richard Schmidt (Lockheed Martin)

10:30 - 11:00am   Morning Break - Exhibits Open

11 am – 12:30 pm
Open Source Development of a Safety Critical Dual
Redundant Signal Control Program Environment
M. Gardinier (Advanced Technologies, Inc.)
Validate, Simulate and Implement ARINC653 Systems
using the AADL
J. Delange, L. Pautet (Telecom ParisTech), A. Plantec,
M. Kerboeuf, F. Singhoff (University of Brest),
and F. Kordon (Université Pierre et Marie Curie)
Sponsor Presentation

12:30 – 2:00pm   Mid-day Break and Exhibits

2 - 3:30 pm
Automatic Prototype Generating
S. X. Liang, L. Reibling, and S. Sambasivam
(Azusa Pacific University)
On Using Ada to Solve Problems
in Computational Economics and Related
Disciplines
B. R. Barkstrom
Sponsor Presentation

3:30 – 4:00 pm   Afternoon Break & Exhibits

4 – 5:30 pm
Experience in Integrating Interchangeable Scheduling
Policies into a Distribution Middleware for Ada
H. Pérez Tijero and J. J. Gutiérrez
(Universidad de Cantabria)
Dynamic Analysis of Branch Mispredictions in Ada
S. M. Lathrop (AMSEC LLC)

Tuesday Evening Reception (7:00pm - 10:00pm)

TECHNICAL PROGRAM Wednesday, November 4

9:00- 10:30 am
Announcements
Keynote Address: **Echo – a New Approach to**
Formal Verification Based on Ada: the Technology,
and Experience in Security and Medical Devices
John Knight (University of Virginia)

10:30 – 11:00am   Morning Break and Exhibits

11 am – 12:30 pm
Use of SPARK
in a Resource Constrained Embedded System
C. Loseby, P. C. Chapin, and C. Brandon
(Vermont Technical College)
A Robotics API Dialect for Type-Safe Robots:
Translating Myro to Ada
A. S. Mentis (US Military Academy at West Point)
Sponsor Presentation

12:30 - 2:00pm   Mid-day Break and Exhibits

2 – 3:30 pm
Invited Presentation: **The Evolution of the Aviation**
Software Assurance Standard, DO-178B/ED-12B
Working towards DO-178C/ED-12C
James Chelini and George Romanski (Verocel)
Sponsor Presentation

3:30 – 4:00 pm   Afternoon Break

4 – 5:30 pm
Complementing Ada
with Other Programming Languages
S. Tardieu and A. Polti
(Institut Télécom/Télécom ParisTech)

Distributed Container: A Design Pattern for
Fault Tolerance and High Speed Data Exchange
T. Dinh (Northrop Grumman Corp.) and S. Barkataki
(California State University, Northridge)

Wednesday Evening (7:00pm - 11:00pm)
Workshops and Birds-of-a-Feather (BoF) Sessions TBD

TECHNICAL PROGRAM Thursday, November 5

9 – 10:30 am
Announcements
Keynote Address:
A Look at Ada from Both Sides Now:
Government and Contractor Perspectives
J.C. Smart (Raytheon)

10:30 am - noon
Georegistration of Imagery
from Unmanned Aircraft Systems Using Ada
Ricky E. Sward (The MITRE Corporation)
The New Semantic Model in ASIS for Ada 2005
J-P. Rosen (Adalog) and T. Taft (SofCheck, Inc.)
Ada Europe 2010 Presentation
ACM SIGAda 2010 Presentation
SIGAda Awards
Closing Remarks

Register early
and join SIGAda online —
SAVE up to $695

SIGAda 2009 VENUE AND HOTEL

Hilton St. Petersburg Bayfront
333 First Street South
St. Petersburg, Florida 33701 (USA)
Tel: 1-727-894-5000
Fax: 1-727-823-4797

The SIGAda 2009 Conference will be held at the Hilton St. Petersburg Bayfront Hotel. This is a beautiful spot located directly on Tampa Bay, Florida. The weather in November is typically in the high 70's F (25 degrees C) with minimal rain fall. It is easily accessible from either the Tampa or Clearwater/St Petersburg airports. And it is about 1-1/2 hours away from the Orlando International Airport and its associated theme parks. The Tampa Bay area also has the Busch Gardens theme park, the Salvador Dali museum, and numerous beaches on the Gulf coast.

The hotel has reserved a block of rooms for the SIGAda 2009 conference. The conference rate is $95 for single or double occupancy rooms, $105 for triple occupancy rooms, and $115 for quadruple occupancy rooms. A 12% tax will be added per night. All reservations must be guaranteed by credit card. Reservations must be received by October 1, 2009. For further information, see http://www.sigada.org/conf/sigada2009/hotel-rates.html

SPONSORS/EXHIBITORS

SIGAda 2009 will include vendor participation, featuring presentations on their products and services during main sessions. For specific information, please contact the Exhibits Chair, **Alok Srivastava**, Northrop Grumman, *Alok.Srivastava@AUATAC.com*

GRANTS TO EDUCATORS

As in past years, SIGAda is offering grants to educators to attend the conference. Grants cover the registration and tutorial fees; travel funds are not covered, but members of the GNAT Academic Program may be eligible for travel funds from AdaCore. Applications must be sent by e-mail, no later than October 16, 2009. Grantees will receive instructions for on-line registration, which will be accepted through October 28, 2009. Grant program details are available from the conference website or **Prof. Michael B. Feldman**, *mfeldman@gwu.edu*

WORKSHOPS/BIRDS-OF-A-FEATHER

Focused workshops are important in shaping Ada technology to better meet the needs of the Ada community. Workshops are free for those registered for the conference. Workshop descriptions are listed at the SIGAda 2009 website. Additional workshops or Birds-of-a-Feather (BoF) sessions are welcome. Workshops have a focused objective and result in a report to be published in *ACM Ada Letters*. BoFs are informal discussion groups. If you would like to propose a Workshop or BoF, please contact the Workshops Chair, **Bill Thomas**, *BThomas@MITRE.Org*

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Why You Should Attend
Ada software is powering Boeing's 787 Dreamliner, the high-speed trains of Europe, the Nuclear Ignition Facility (NIF) that will lead to new breakthroughs in the worlds of power generation, astrophysics, materials science and many other scientific disciplines, Space Systems, U.S. and international air traffic control systems, the New York subway, and numerous military and commercial systems in which software reliability, safety, and security are paramount. Don't miss this chance to bring yourself up to date on Ada!

ADVANCE PROGRAM

Register early
and join SIGAda —
visit the conference website
and SAVE up to

$695